

**Amendment to the Claims:**

This listing of the claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

Claims 1-19 (Canceled).

Claim 20 (Currently amended). A thermocatalytic pollution control system comprising:

a target pollutant having a varying flow rate;

a thermocatalytic reactor having at least one catalytic media loosely positioned inside, and at least one heat source;

means for rotating the catalytic media to form a fluidized bed; and

means for passing the varying flow rate target pollutant into the fluidized bed of the at least one catalytic media and converting the varying flow rate target pollutant that passes through the fluidized bed of the at least one catalytic media to a selected level of destruction and removal efficiency (DRE).

Claim 21 (Currently amended). The thermocatalytic pollution control system of claim 20, further comprising:

a second thermocatalytic reactor having at least one catalytic media loosely positioned inside, and at least one heat source; ~~and~~

means for converting the varying flow rate target pollutant passing through the second thermocatalytic reactor to another selected level of destruction and removal efficiency (DRE); and

means for rotating the second thermocatalytic reactor.

Claim 22 (Canceled).

Claim 23 (Previously presented). The thermocatalytic pollution control system of claim 21, wherein the first and the second thermocatalytic reactors are in series to one another.

Claim 24 (Previously presented). The thermocatalytic pollution control system of claim 21, wherein the first and the second thermocatalytic reactors are in parallel to one another.

Claim 25 (Previously presented). The thermocatalytic pollution control system of claim 20, wherein the one catalytic media includes:

an elemental composition of Carbon, Oxygen, Hydrogen and Titanium.

Claim 26 (Previously presented). The thermocatalytic pollution control system of claim 20, wherein the one catalytic media includes:

approximately 1% to approximately 86% by weight Carbon;

approximately 1% to approximately 20% by weight Oxygen;

approximately 7% to approximately 15% by weight Hydrogen; and

approximately 1% to approximately 30% by weight Titanium.

Claim 27 (Previously presented). The thermocatalytic pollution control system of claim 20, wherein the one catalytic media includes:

an elemental composition of Carbon, Hydrogen, Cadmium and Sulfur.

Claim 28 (Previously presented). The thermocatalytic pollution control system of claim 20, wherein the one catalytic media includes:

approximately 30% to approximately 86% by weight Carbon;  
approximately 6.5% to approximately 14.3% by weight Hydrogen;  
approximately 1% to approximately 50% by weight Cadmium; and  
approximately 1% to approximately 15% Sulfur.

Claim 29 (Previously presented). The thermocatalytic pollution control system of claim 20, wherein the one catalytic media includes:

an elemental composition of Silicon, Oxygen and Titanium.

Claim 30 (Previously presented). The thermocatalytic pollution control of claim 20, wherein the one catalytic media includes:

approximately 0% to approximately 35% by weight Silicon;  
approximately 30% to approximately 60% by weight Oxygen; and  
approximately 10% to approximately 60% by weight Titanium.

Claim 31 (Previously presented). The thermocatalytic pollution control system of claim 20, wherein the one catalytic media includes:

an elemental composition of Silicon, Oxygen, Cadmium and Sulfur.

Claim 32 (Previously presented). The thermocatalytic pollution control system of claim 20, wherein the one catalytic media includes:

approximately 25% to approximately 55% by weight Silicon;

approximately 30% to approximately 60% by weight Oxygen;

approximately 5% to approximately 35% by weight Cadmium; and

approximately 1% to approximately 10% by weight Sulfur.

Claim 33 (Previously presented). The thermocatalytic pollution control system of claim 20, wherein the heat source includes: a high flux light source.

Claim 34 (Currently amended). A high flux thermocatalytic ~~photocatalytic~~ pollution control system, comprising:

a target pollutant having a varying flow rate;

a thermocatalytic reactor having a rotating drum and a heat source;

thermocatalytic media loosely positioned in the rotating drum of the  
thermocatalytic reactor; and

a motor for rotating the rotating drum thermocatalytic reactor to loosely position  
the thermocatalytic media in the rotating drum so that the varying target pollutant passing

through the loosely positioned thermocatalytic media within the thermocatalytic reactor is converted to a selected level of destruction and removal efficiency(DRE).

Claim 35 (Currently amended). The high flux thermocatalytic ~~photocatalytic~~ pollution control system of claim 34, wherein the heat source includes: a high flux light source.

Claim 36 (Currently amended). The high flux thermocatalytic ~~photocatalytic~~ pollution control system of claim 34, further comprising:

a second thermocatalytic reactor with a heat source in series to the first thermocatalytic reactor.

Claim 37 (Currently amended). The high flux thermocatalytic ~~photocatalytic~~ pollution control system of claim 34, further comprising:

a second thermocatalytic reactor with a heat source in parallel to the first thermocatalytic reactor.

Claim 38 (New). The thermocatalytic pollution control system of claim 20, wherein the thermocatalytic reactor comprises:

an impermeable rotating drum having a permeable rotating drum therein, the permeable drum having grid-like sidewalls, a top and a bottom, wherein the at least one catalytic media is loosely positioned within the permeable rotating drum such that during rotation the fluidized bed is formed over the grid-like sidewalls;

an inlet in the impermeable rotating drum for receiving the varying flow rate target pollutant into the rotating drum between side walls of the rotating drum and the rotating grid; and

an outlet in the top of the permeable rotating drum, wherein during rotation the

varying flow rate target pollutant that passes through the fluidized bed to a selected level of destruction and removal efficiency.

Claim 39 (New). The thermocatalytic pollution control system of claim 38, wherein the permeable rotating drum comprises:

a truncated cone having a taper angle within a range of approximately two degrees to approximately 8 degrees.

Claim 40 (New). The thermocatalytic pollution control system of claim 38, wherein the grid-like sidewalls comprise:

a mesh stainless steel screen having a layer of close-knit glass fiber wrapped on the outer surface of the mesh stainless steel screen.

Claim 41 (New) The thermocatalytic pollution control system of claim 21, wherein the second thermocatalytic reactor comprises:

a second impermeable rotating drum having a permeable rotating drum therein forming a second stage, the permeable drum having grid-like sidewalls, a top and a bottom, wherein the at least one catalytic media is loosely positioned within the permeable rotating drum such that during rotation the fluidized bed is formed over the grid-like sidewalls;

an inlet in the second impermeable rotating drum for receiving the varying flow rate target pollutant into the second impermeable rotating drum between side walls of the rotating drum and the rotating grid; and

an outlet in the top of the permeable rotating drum, wherein during rotation the varying flow rate target pollutant passes through the fluidized bed of the second stage to a selected level of destruction and removal efficiency.